

Breast Cancer Overdiagnosis Costs \$4 Billion, Says Study

Roxanne Nelson | April 08, 2015

About \$4 billion is spent every year in the United States because of false-positive mammography results and breast cancer overdiagnosis, according to a new study.

In an analysis that involved more than 700,000 women 40 to 59 years of age, the authors found that average expenditures ranged from \$852 for every false-positive mammogram to \$51,837 for a diagnosis of invasive breast cancer.

The study [was published](#) in the April issue of *Health Affairs*.

The potential for harm from routine mammography has been widely publicized in recent years, as [previously reported](#) by *Medscape Medical News*. "But now, we are showing the financial cost of it, and it does integrate with the human factors involved," said study author Kenneth D. Mandl, MD, MPH, director of the informatics program at Boston Children's Hospital.

"The fact that this is a \$4 billion problem is an important message for several reasons," he told *Medscape Medical News*. "First, it gives a sense of the problem that may not be easily elucidated from just statistics on false positives."

"Second, this is a substantial phenomenon," Dr Mandl continued. "We are in a system that is trying to get control of costs, but we are paying high costs for poor outcomes, and that is not the tradeoff we are looking for."

Mammography screening has been a hot-button issue ever since 2009, when the US Preventive Services Task Force [recommended against](#) routine mammography screening for women 40 to 49 years of age.

This move "provoked a vigorous debate that continues today," the authors note, and some organizations, such as the American Cancer Society, still [recommend annual mammograms](#) beginning at age 40.

False-positive results and an overdiagnosis of breast cancer as a result of routine screening are more common in women in that age group because of their propensity for denser breast tissue, which can affect the sensitivity and specificity of mammography.

"If a woman gets a mammography every year for a period of 10 years, the probability of her having a false-positive result is about 60%," said Dr Mandl. "The rate of overdiagnosis is 20% to 30%. This risk is not well understood by the majority of women undergoing screening."

New Screening Paradigm May Be Needed

For their study, Dr Mandl and coauthor Mei-Sing Ong, PhD, a research fellow at Boston Children's Hospital, used data from a major healthcare insurance plan to measure the expenditures associated with false mammography findings and breast cancer overdiagnosis.

They identified 702,154 women who underwent mammography from 2011 to 2013.

A false-positive mammogram led to further diagnostic workups and procedures in 77,729 of these women (11.1%). A false-positive result was more common in women 40 to 49 years of age than in those 50 to 59 years (odds ratio, 1.25; $P < .001$).

A biopsy was performed in 29.3% of the women with a false-positive result, and 0.4% of those women underwent prophylactic mastectomy. The average expenditure was \$852, with an average out-of-pocket cost of \$200.

To estimate the cost of breast cancer overdiagnosis, Drs Mandl and Ong looked at expenses that were incurred for treating both invasive breast cancer and ductal carcinoma in situ (DCIS). A total of 2494 women (0.4%) were diagnosed with invasive breast cancer and 105 (0.01%) with DCIS.

The average cost of medical services for each case of invasive breast cancer was \$51,837, with average out-of-pocket costs of \$3019. The cost of treating DCIS was considerably lower, averaging \$12,369.

The authors point out that the natural history of untreated DCIS has never been determined, but one large study reported that only 14% of women with DCIS went on to develop invasive cancer (*J Natl Cancer Inst.* 2004;96:906-920). This suggests that 86% of cases are more than likely to be overdiagnosed, and when applied to cost data, the annual national expenditure incurred by DCIS overdiagnoses is \$243 million.

Some experts are now advocating a selective screening approach, in contrast to current guidelines that only consider age as a risk factor for breast cancer. "However, an understanding of other risk factors — including genetic predisposition, obesity, breast density, and family history of breast cancer — is beginning to emerge," Drs Mandl and Ong write. "This knowledge should be used to shape a more individualized approach to determining who should receive screening, focusing on women who are most likely to benefit from it."

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